

## **ABSTRACT OF THE DISCLOSURE**

A process for the treatment of wooden elements, said process comprising the following steps: conditioning said wooden elements to reduce their moisture content; and a) performing one of the following sequences of steps selected from the group consisting of at least the sequence of steps b1) to b4) or at least the sequence of steps bb1) to bb2); said sequence of step b1) to b4) at least comprising: b1) impregnating the wooden elements obtained from step a) with at least one wood preservative, b2) heating the wooden elements obtained from step b1) at a temperature of at least 51&deg; C to fix said wood preservative(s) in said wooden elements, b3) impregnating the wooden elements obtained from step b2) with a solution comprising polymerizable reactive groups, identical or different, that can form a polymer under polymerizing condition, and b4) subjecting the wooden elements obtained from step b3) to polymerizing condition to polymerize said reactive group(s); said sequence of steps bb1) to bb2) at least comprising: bb1) impregnating the wooden elements obtained from step a) with a mixture of at least one wood preservative and polymerizable reactive groups, identical or different, that can form a polymer under polymerizing condition, and bb1) heating the wooden elements obtained from step bb2) at a temperature of at least 51&deg; C to fix the wood preservative(s) and to polymerize said reactive groups. The treated wooden elements so obtained and their uses.